

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: SF/Ala Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-009829**Date Inspected:** 18-Oct-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 700**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower and OBG Components**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance Inspector George Goulet was present during the times noted above for observations relative to the work being performed.

Bay 10

This QA Inspector randomly observed the following work in progress in Bay 10:

SMAW welding of weld joints SSD1-A554A/B-2-51, 51, 53, 55, 43, 44, 45, 47 located on PCMK south tower skirt plate. Welder was identified as 053829. ZPMC QC was identified as CWI Chen Ying Xin (QC1). Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC Sun Tian Liang, who was not a CWI. The welding variables recorded by QC1 and QC1's assistant appeared to comply with WPS-B-P-2113.

FCAW welding of weld joints SSTL4-1C/L-12, 13 located inside PCMK south tower, lift 4, skin B to bottom of 119M double diaphragm. Welders were identified respectively as 053116, 054069. ZPMC QC was identified as CWI Liu Zhong An (QC2). Assisting QC2 at this location and appearing to be monitoring the welding and recording data was ZPMC Yuan Hui Gang, who was not a CWI. The welding variables recorded by QC1 and QC1's assistant appeared to comply with WPS-B-T-4333-TC-P5-F.

FCAW welding of weld joints NSTL3-3C/K-61, 62 located inside PCMK north tower, lift 3, skin E, fit lug to bottom of 89M double diaphragm and fit lug to skin stiffener, respectively. Welder was identified as 057266. ZPMC QC was identified as QC2. The welding variables recorded by QC2 appeared to comply with

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WPS-B-T-4331-TC-P4-F for weld 61 and WPS-B-T-2332-TC-P4-F for weld 62.

FCAW welding of weld joints NSTL3-3D/K-58, 59 located inside PCMK north tower, lift 3, skin E, fit lug top of 89M double diaphragm and fit lug to skin stiffener, respectively. Welder was identified as 040343. ZPMC QC was identified as QC2. The welding variables recorded by QC2 appeared to comply with WPS-B-T-4331-TC-P4-F for weld 58 and WPS-B-T-2332-TC-P4-F for weld 59.

FCAW welding of weld joints NSTL3-3G/K-64, 63 located inside PCMK north tower, lift 3, skin E, fit lug to bottom of 99M double diaphragm and fit lug to skin stiffener, respectively. Welder was identified as 057180. ZPMC QC was identified as QC2. The welding variables recorded by QC2 appeared to comply with WPS-B-T-4331-TC-P4-F for weld 64 and WPS-B-T-4332-TC-P4-F for weld 63.

FCAW welding of weld joints NSTL3-3G/K-150, 148 located inside PCMK north tower, lift 3, skin E, fit lug to top of 99M double diaphragm and fit lug to skin stiffener, respectively. Welder was identified as 053870. ZPMC QC was identified as QC2. The welding variables recorded by QC2 appeared to comply with WPS-B-T-4331-TC-P4-F for weld 150 and WPS-B-T-4332-TC-P4-F for weld 148.

### Bay 9 – PMT

This QA Inspector monitored OBG Production Monitoring Test (PMT) #3031 for deck panels DP3031-001 and DP3045-001 at Gantry #2. Prior to the start of the PMT, the magnetic particle test (MT) of the tack welds was noted on the test panel as having been performed by ZPMC MT Inspector Ding A Cheng on 10/18/09. The visual inspection of tack welds and root gap was performed by ABF Representative Wang Wan Shong (ABF), ZPMC CWI Sun Bo (QC), and this QA Inspector. The start time for welding of the 3–12mm x 20mm specimens was approximately 0012 hours on 10/19/09 and the finish time was approximately 0044 hours. This QA Inspector randomly verified and documented the welding amperage, voltage, and travel speed during the gas metal arc welding (GMAW) and submerged arc welding (SAW) processes, welds 1 thru 6 at the completion of both the GMAW root pass and SAW cover pass. The welding variables recorded by QC appeared to comply with WPS-B-T-2342-U1-(U-rib)-4. The welds were visually inspected by ABF, QC and this QA Inspector. QC and ABF informed this QA Inspector that all six welds were acceptable and this QA Inspector concurred. This QA Inspector randomly witnessed ZPMC ultrasonic testing (UT) inspector, identified as Tang Xingshan, perform UT on each of the 500 mm test welds for depth of penetration and conformance. This QA Inspector selected fifteen designated locations for macroetch sampling per contract requirements. Each macroetch location was stamped by ZPMC personnel with the number 3031, the letter W, and an individual macroetch identifying number for each macroetch. After removal from each of the weld test specimens, polishing, and acid etching of the selected end, the macroetches were evaluated with a 7X optical magnifier and accepted by QC, ABF, and this QA Inspector.

All fifteen sample macros appeared to generally comply with applicable contract documents and were noted to appear acceptable. See Caltrans U-ribs PMT Inspection Sheet, ZPMC production monitoring test plate inspection report, and Caltrans Macro Etch Log - all dated 10/19/2009 for additional information.

Unless otherwise noted, all work observed on this date appeared to generally comply with applicable contract documents.

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### Summary of Conversations:

As noted above.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Serge Sinevod, 134-8257-0045, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Goulet, George
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Quality Assurance Inspector
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<b>Reviewed By:</b>	Dawson, Paul
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QA Reviewer
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